



actual size

Oscillator JTP75HC(V) · (VC)TCXO

- precision temperature compensated crystal oscillator, 7.0 x 5.0 mm
- frequency stability of ± 50 ppb available
- temperature range up to -40°C ~ +105°C
- JTP75HCV with frequency tuning option
- for a Stratum 3 compliant version refer to JTS75HC(V)



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

GENERAL DATA		
TYPE	JTP75HC / JTP75HCV (HCMOS output)	
frequency range	9.60 ~ 50.0 MHz (see developed frequ.)	
frequency tolerance / stability	at +25 °C (*1)	± 1.0 ppm max.
	after 2x reflow (*2)	± 0.5 ppm max.
	temperature (*3)	see table 1
	supply voltage (*4)	± 0.1 ppm max. (at V _{DC} ± 5%)
	load change (*5)	± 0.1 ppm max. (at nom load ± 5%)
	aging first year (*6)	± 1.0 ppm max. (at +25 °C)
	aging per day (*7)	± 10.0 ppb max.
	short term (ADEV)	0.2 ppb max. / 0.1 ppb typ. with τ = 1 sec
current consumption max.	10.0 mA	
supply voltage V _{DC}	3.3V (all ± 5%)	
temperature	operating	see table 1
	operable	-40 °C ~ +105 °C
	storage	-55 °C ~ +105 °C
output	rise/fall time max.	8ns (10% <-> 90% of VDC)
	nominal load	15 pF
	low level max.	0.4V
	high level min.	V _{DC} - 0.4V
start-up time max.	3.0 ms	
V _C frequ. tuning range JTP75HCV	examples in table 2 (ask for more options)	
V _C frequ. tuning voltage JTP75HCV	examples in table 3 (ask for more options)	

For (*1) ~ (*7) please refer to definitions shown on the 2nd page of this datasheet

TABLE 1: FREQUENCY STABILITY CODE

frequency stability temperature code	E	F*1	H*1	G*1	J*1
	± 0.5 ppm	± 0.28 ppm	± 0.20 ppm	± 0.10 ppm	± 0.05 ppm
-30 °C ~ +75 °C	G	○	○	○	○
-40 °C ~ +85 °C	K	○	○	○	○
-40 °C ~ +105 °C	P	○	○	○	○

○ available

*1 frequency stability options F / H / G and J can be ordered as Stratum 3 compliant versions, see separate JTS75HC(V) datasheet

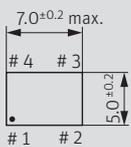
TABLE 2: VC DEPENDENT FREQUENCY TUNING RANGE CODING METHOD

V _C frequency tuning range of JTP75HCV	code	minimal	maximal
table shows examples, ask for more options	05X0	± 5.0 ppm	undefined
	08X0	± 8.0 ppm	undefined
	0510	± 5.0 ppm	± 10.0 ppm
	0812	± 8.0 ppm	± 12.0 ppm

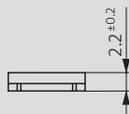
TABLE 3: VC CODING METHOD (EXAMPLES)

V _C center voltage and V _C range	code	center of V _C	range of V _C	
	1616	1.65 V	± 1.65 V	1.65 V ± 1.65 V at V _{DC} = 3.3 V
	1610	1.65 V	± 1.00 V	1.65 V ± 1.00 V at V _{DC} = 3.3 V
	1515	1.50 V	± 1.50 V	1.50 V ± 1.50 V at V _{DC} = 3.3 V
	1510	1.50 V	± 1.00 V	1.50 V ± 1.00 V at V _{DC} = 3.3 V
V _C properties	input impedance of V _C min.		100 kOhm	
	V _C frequency tuning linearity max.		10 %	

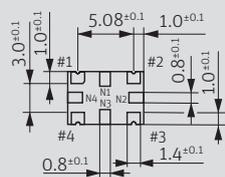
DIMENSIONS



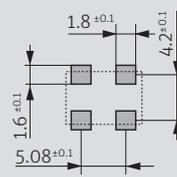
top view



side view



bottom view



pad layout

TCXO

JTP75HC

N1, N2, N3, N4: NC

1: NC

2: GND

3: output

4: V_{CC}

pin connection

VCTCXO

JTP75HCV

N1, N2, N3, N4: NC

1: V_C

2: GND

3: output

4: V_{CC}

in mm

ORDER INFORMATION

0	frequency	type	frequency stability code	operating temp. code	supply voltage	control voltage (for JTP75HCV)	tuning range (for JTP75HCV)
Oscillator	9.60 ~ 50 MHz	JTP75HC = TCXO JTP75HCV = VCTCXO	E = ± 0.50 ppm F = ± 0.28 ppm H = ± 0.20 ppm G = ± 0.10 ppm J = ± 0.05 ppm	G = -30°C ~ 75°C K = -40°C ~ 85°C P = -40°C ~ 105°C	3.3 = 3.3 V	see table 3	see table 2

Example: 0 10.0-JTP75HCV-F-K-3.3-1616-08X0-LF (Suffix LF = RoHS compliant / Pb free)

Oscillator JTP75HC(V) · Precision TCXO & VCTCXO

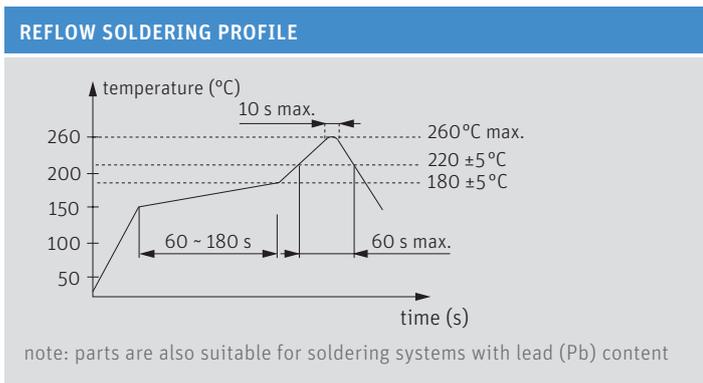
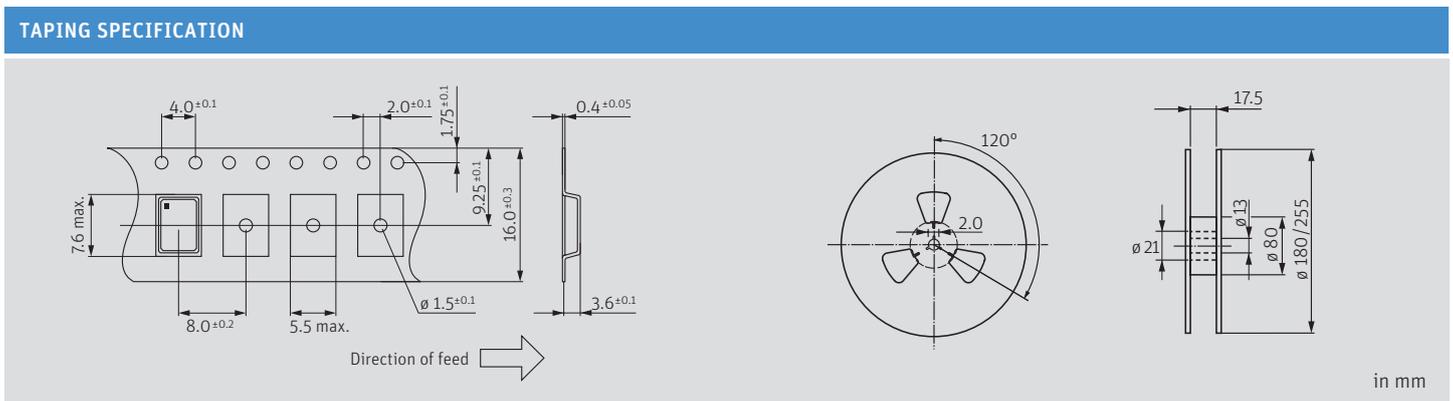
PHASE NOISE INFORMATION		
phase noise at f ₀ 19.2 MHz, V _{DC} = 3.3 V @ +25 °C	at 10 Hz	-93 dBc/Hz typ.
	at 100 Hz	-120 dBc/Hz typ.
	at 1 KHz	-145 dBc/Hz typ.
	at 10 KHz	-157 dBc/Hz typ.
	at 100 KHz	-159 dBc/Hz typ.

PACKAGING NOTE
- non-multiple packing units are only supplied taped / bulk
- moisture sensitivity: MSL2

DEVELOPED FREQUENCIES					
all frequencies in MHz:	9.60	10.0	12.80	13.0	16.3840
	18.4320	19.20	19.440	20.0	25.0
	26.0	30.720	38.880	40.0	50.0

NOTE
- for best supply noise rejection, connect a capacitor of 100nF and a second capacitor of 10µF closely to the supply voltage pins
- a separate voltage supply rail ensures best phase noise
- keep digital or high frequency signals as far away from V _C pin as possible

DEFINITIONS
*1: Measured frequency observed with T _A =+25°C and C _L =15pF, at nominal V _{DC} and nominal center V _C (if applicable) within 30 days after ex-factory. The measured frequency is referenced to the specified nominal frequency.
*2: At specified reflow soldering profile, tested with T _A =+25 °C and C _L =15pF, at nominal V _{DC} and nominal center V _C (if applicable). At least 4 hours of static placement at room temperature is necessary after completion of 2 times reflow.
*3: T _A varied in the specified operating temperature range, frequency variation is normalized to the middle point of whole frequency excursion, at nominal V _{DC} and nominal center V _C (if applicable), and at nominal output load, temperature variable speed less than 2°C per minute.
*4: Frequency variation if V _{DC} is varied by ± 5% of nominal V _{DC} , frequency variation is normalized to frequency observed at nominal V _{DC} , nominal center V _C (if applicable), T _A =+25 °C and nominal load.
*5: Frequency variation if the load is varied by ± 5% of nominal load, frequency variation is normalized to frequency observed at nominal V _{DC} , nominal center V _C (if applicable), T _A =+25 °C and nominal load.
*6: The maximum 1st-year frequency deviation from the ex-factory status. T _A =+25 °C, at nominal V _{DC} , nominal center V _C (if applicable), T _A =+25 °C and nominal load. Normally, the largest frequency deviation occurs within the 1st year.
*7: The maximum frequency deviation within 24 hours in a steady state. The initial status acquired at T _A =+25 °C, at nominal V _{DC} , nominal center V _C (if applicable), nominal load and after 1h of continuous operation.



MARKING
internal code (optional) / frequency
dot / internal code (optional) / date code (WWYY)
date code: two digits for week and two digits for year